Trend Study 8B-4-00

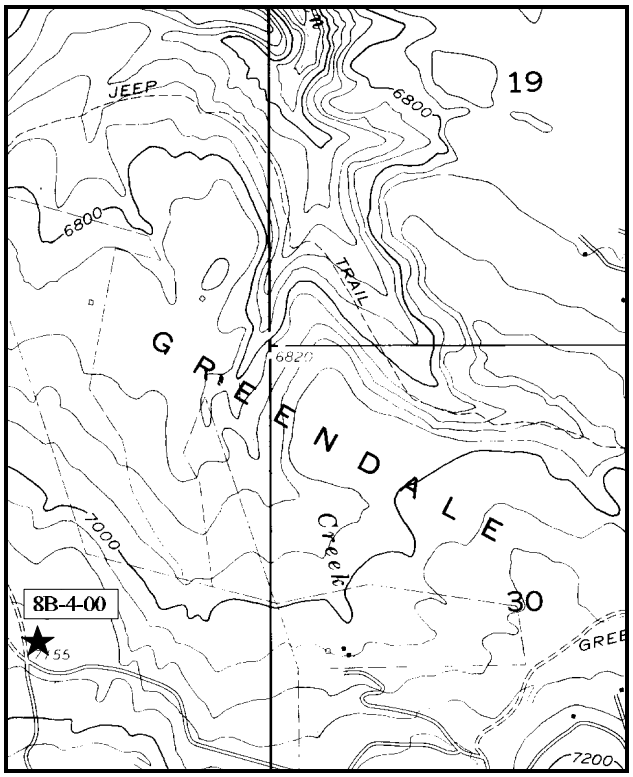
Study site name: Greendale . Range type: Big Sagebrush-Grass .

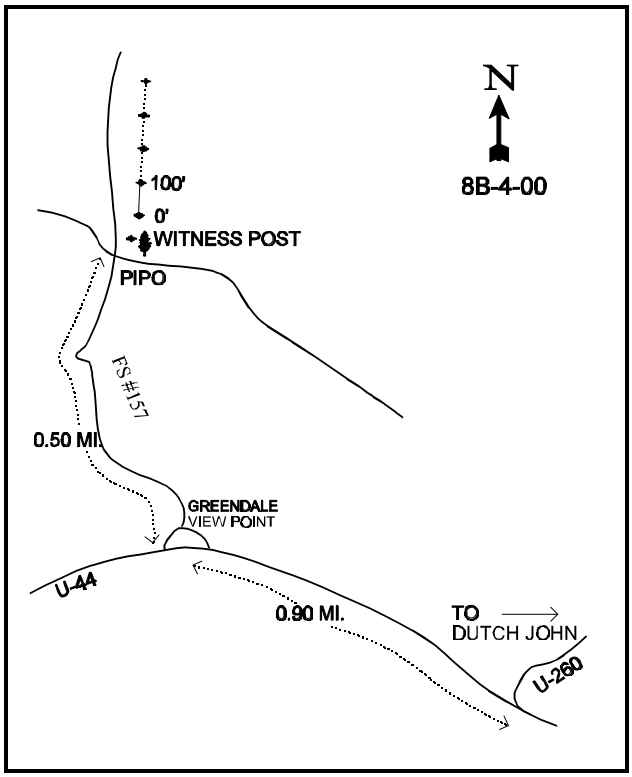
Compass bearing: frequency baseline 347°M .

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPT1ON

From the junction of Highways U-44 and U.S. 191, proceed towards Manilla for 0.9 miles. Turn off at the Greendale view point. Take the dirt road (FS 157) to the north which goes to the Canyon Rim trail. Go 0.5 miles to an intersection. From the Ponderosa pine northeast of the intersection, the 0-foot baseline stake is 21 paces away bearing 26°.





Map Name: Dutch John Diagrammatic Sketch

Township 2N , Range 21E , Section 25 UTM 4526159.833 N, 626500.233 E

DISCUSSION

Trend Study No. 8B-4 (9-4)

The Greendale study samples a sagebrush/grass park surrounded by montane forest at 7,100 feet in elevation. The site is nearly level (0-5%) with a slight north aspect. The area is classified as deer and elk winter range, but depending on the weather, it actually receives year-round use by big game. Pellet group data from 2000 indicate moderate deer use at 28 deer days use/acre (69 ddu/ha). Elk use is moderately high at an estimated 62 days use/acre (153 edu/ha). This area is also used by rabbits and a few moose (see pellet group table). Cattle also graze the area at a level of 13.4 suitable acres per AUM from June 1st to September 30th. Livestock use is estimated at 10 cow days use/acre (25 cdu/ha) in 2000.

Soil on the site is fairly deep for a range site with gravel and rock uncommon on the surface and evenly dispersed throughout the profile. Effective rooting depth is estimated a nearly 20 inches. It has a sandy clay loam texture and is slightly acidic in reactivity (pH of 6.3). Phosphorus is limited at only 3.3 ppm. Values less than 10 ppm can limit normal plant growth and development. Erosion is minimal due to the level terrain and the abundance of vegetation and litter cover. Percent cover for bare ground has steadily declined from a high of 36% in 1982, to 12% in 2000.

The key browse species on the site are mountain big sagebrush and antelope bitterbrush. Sagebrush is more numerous and provides the majority of the browse cover. It had an estimated density of 1,733 plants/acre in 1982, increasing to 4,400 by 1988. The population has remained fairly stable since then and currently ('00) numbers 4,800 plants/acre. Use has varied from light to moderate. Percent decadency has been relatively low in the past (19% in 1982 to 6% in 1995), but increased to 29% in 2000 due to drought conditions. Approximately 20% (280 plants/acre) of the decadent plants sampled in 2000 appear to be dying. Young plants appear numerous enough to maintain the population however.

Bitterbrush contributed 15% of the total browse cover in 1995, increasing to 23% in 2000. Density is currently ('00) estimated at 1,380 plants/acre. Use was moderate to heavy in 1982 and 1988, but mostly moderate in 1995 and 2000. Percent decadence has remained low and vigor normal on most plants since 1982.

The low growing Fendler ceanothus is also abundant and contributed 25% of the total browse cover in 1995, and 15% in 2000. It is a short stature plant with an average height of only 8 or 9 inches, yet it has a crown of 3½ to 4 feet. It is capable of producing good quantities of forage in the winter if the snows are not deep. There appears to be little use on this shrub however. The increase in density for this species since 1982 is more reflective of the much larger sample used in 1995 and 2000 which gives better population estimates for species with discontinuous and/or clumped distributions.

Other browse growing on the site include: mountain low rabbitbrush, snakeweed, Oregon grape, Wood's rose and snowberry. These species show little or no utilization. Ponderosa pine surround the site and a few mature and young trees are scattered on the site. Point-center quarter data from 2000 estimate 21 trees/acre with an average diameter of 3.4 inches. Overhead canopy cover averages 2% directly on the site.

The herbaceous understory is diverse and abundant with grasses and forbs combining to produce 49% of the total vegetative cover in 1995 and 58% in 2000. The dominant grass by far is Kentucky bluegrass which currently ('00) provides 85% of the total grass cover. It forms a dense sod over much of the area which tends to exclude other native grass and forb species. The only other common grass species is needle-and-thread.

Forbs are diverse and produced as much cover as grasses in 1995, with 32 perennial and 4 annual species being encountered. Cover of forbs decreased in 2000 while that of grasses increased. Sum of nested frequency of

forbs and grasses both declined in 2000, due primarily to drought. The most numerous perennial forbs include: arrowleaf balsamroot, pussytoes and rock goldenrod. Two annual forbs, slenderleaf collomia and littleflower collinsia were abundant in 1995, but due to the dry conditions in 2000, they declined significantly.

1982 APPARENT TREND ASSESSMENT

Soil trend appears stable with little evidence of extensive soil movement. The vegetative cover is irregular and somewhat unevenly spaced but quite dense where it occurs. Vegetative trend also appears stable, although open to more question. Shrub density could be better, especially among the more preferred species which show relatively heavy levels of use. Undesirable shrubs are not currently abundant and show few signs of rapid increase. Grasses and forbs are fairly dense and may inhibit, to some extent, shrub reproduction.

1988 TREND ASSESSMENT

Vegetative and litter cover remain excellent, providing adequate ground cover, yet the data shows an increase in the proportion of pavement and rock cover. As a result, bare soil decreased from 36% to 25%. Aside from rather significant soil loss from the roads and a nearby large gully, soil erosion is not a problem on the well-vegetated study site. Trend for soil is slightly improved. The browse trend is also up for the preferred species, mountain big sagebrush and bitterbrush. Densities have increased, decadency rates are low, vigor is generally good and reproduction is excellent. Trend for the herbaceous understory is up with an increase in the quadrat frequency of grasses and forbs.

TREND ASSESSMENT
soil - slightly up (4)
browse - up (5)
herbaceous understory - up (5)

1995 TREND ASSESSMENT

Ground cover characteristics continue to improve with percent bare ground declining from 25% to 17%. Litter cover has also increased slightly. Herbaceous plants make up 50% of the vegetation cover, further protecting the soil from erosion. The browse trend is improving for mountain big sagebrush due to increased density, good vigor, low percent decadency, and good recruitment. Trend for bitterbrush is slightly up due to reduced heavy use, good vigor, and a reduction in percent decadency. Overall, trend for browse is up. Trend for the herbaceous understory is also up due to a large increase in sum nested frequency for perennial grasses and forbs.

TREND ASSESSMENT
soil - up (5)
browse - up (5)
herbaceous understory - up (5)

2000 TREND ASSESSMENT

Trend for soil is up. Percent cover of vegetation and litter have moderately increased while percent cover of bare ground continues to decrease. This has resulted in an improvement in the ratio of protective ground cover (vegetation, litter and cryptogams) to bare ground from 2.9:1 to 4.1:1. Herbaceous cover has also increased from 27% to 32% since 1995. There is no significant erosion occurring on the site. Trend for the key browse species, mountain big sagebrush and bitterbrush, are stable. Sagebrush shows only light to moderate use but percent decadence has increased from 6% to 29% due to drought. Vigor continues to be normal on most plants

and recruitment from young plants is currently good at 11%. Bitterbrush is moderately browsed, in good vigor, and has low decadency. Trend for the herbaceous understory is slightly down and still dominated by Kentucky bluegrass. Sum of nested frequency of perennial grasses and forbs have declined slightly. Kentucky bluegrass currently provides 85% of the grass cover and 66% of the herbaceous cover. It actually increased significantly in nested frequency and nearly doubled in cover. Nested frequency of thickspike wheatgrass, orchardgrass, prairie Junegrass, Sandberg bluegrass, and bottlebrush squirreltail declined significantly but they were never very abundant. Nested frequency of perennial forbs declined slightly while frequency of the annual forbs, slenderleaf collomia and littleflower collinsia, declined significantly due to the dry conditions.

TREND ASSESSMENT
soil - up (5)
browse - stable (3)
herbaceous understory - slightly down, still dominated by Kentucky bluegrass (2)

HERBACEOUS TRENDS --
Herd unit 08B, Study no: 4

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
G	Agropyron dasystachyum	a37	b110	a19	-	21	37	10	.88	.12
G	Agropyron spicatum	-	4	3	-	-	2	1	.03	.00
G	Agropyron trachycaulum	-	-	4	4	-	-	2	-	.03
G	Bromus tectorum (a)	-	5	-	-	-	2	-	.15	-
G	Carex spp.	20	17	18	4	11	7	9	.08	.16
G	Dactylis glomerata	a-	b25	a4	-	-	10	2	.07	.18
G	Elymus junceus	-	-	-	1	-	-	-	-	-
G	Danthonia spicata	-	-	1	-	-	-	1	-	.00
G	Koeleria cristata	b18	b18	a3	-	9	8	1	.11	.03
G	Poa fendleriana	a-	b28	b11	-	-	11	6	.25	.08
G	Poa pratensis	a303	a287	b352	-	98	91	99	10.21	21.30
G	Poa secunda	a8	b33	a11	44	5	13	4	.26	.04
G	Sitanion hystrix	b54	b40	a3	21	27	17	1	.28	.00
G	Stipa comata	a36	b82	b82	19	19	35	35	.97	3.17
G	Stipa lettermani	1	-	-	10	1	-	-	-	-
Total for Annual Grasses		0	5	0	0	0	2	0	0.15	0
Total for Perennial Grasses		477	644	511	98	191	231	171	13.18	25.17
Total for Grasses		477	649	511	98	191	233	171	13.33	25.17
F	Achillea millefolium	a-	a1	b11	-	-	1	3	.00	.09
F	Agoseris glauca	a-	b27	a-	-	-	13	-	.09	-
F	Allium spp.	a-	b46	a-	26	-	22	-	.18	-
F	Antennaria rosea	a6	b37	b35	-	3	14	15	1.11	.92

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
F	Arabis spp.	-	5	2	-	-	2	1	.01	.00
F	Artemisia ludoviciana	-	-	4	-	-	-	2	-	.18
F	Aster chilensis	a4	b24	b17	1	2	8	10	.26	.32
F	Astragalus spp.	-	-	2	-	-	-	1	-	.00
F	Balsamorhiza sagittata	a8	b57	b59	2	4	29	31	3.67	3.95
F	Calochortus nuttallii	a-	b7	a-	2	-	3	-	.01	-
F	Castilleja spp.	-	1	-	-	-	1	-	.00	-
F	Collomia linearis (a)	-	b195	a3	-	-	71	1	1.56	.00
F	Comandra pallida	54	72	66	18	22	30	29	.39	.65
F	Collinsia parviflora (a)	-	b255	a3	-	-	81	2	2.95	.01
F	Cymopterus longipes	8	7	19	-	3	3	9	.01	.07
F	Eriogonum alatum	b45	a6	a4	11	21	3	2	.07	.01
F	Erigeron divergens	28	-	-	-	12	-	-	-	-
F	Erigeron eatonii	a12	a11	b28	2	5	5	14	.02	.45
F	Erigeron flagellaris	a-	a3	b36	-	-	1	14	.03	.93
F	Eriogonum umbellatum	6	6	4	4	3	2	2	.03	.15
F	Gayophytum ramosissimum (a)	-	2	-	-	-	1	-	.00	-
F	Gilia aggregata	-	-	-	3	-	-	-	-	-
F	Heterotheca villosa	b110	a39	a17	45	46	17	9	.29	.46
F	Holosteum umbellatum (a)	-	-	1	-	-	-	1	-	.03
F	Ipomopsis aggregata	a-	a-	b7	-	-	-	3	.00	.01
F	Lepidium spp. (a)	-	5	-	-	-	2	-	.01	-
F	Linum lewisii	40	35	35	20	19	16	16	.10	.24
F	Lithospermum ruderale	a-	a2	b12	-	-	1	6	.03	.10
F	Lomatium spp.	a-	b6	a-	-	-	4	-	.02	-
F	Lupinus argenteus	1	-	-	-	1	-	-	-	-
F	Lychnis drummondii	-	-	-	3	-	-	-	-	-
F	Oenothera pallida	b26	a6	a-	-	11	2	-	.01	-
F	Penstemon humilis	a2	b18	ab9	3	2	8	4	.14	.04
F	Petradoria pumila	40	27	23	19	19	14	10	.92	1.00
F	Phlox austromontana	a-	b8	ab3	-	-	5	1	.51	.00
F	Phlox longifolia	a-	b7	b6	-	-	3	3	.01	.04
F	Phlox spp.	a-	b21	a-	-	-	7	-	.03	-
F	Polygonum douglasii (a)	-	b51	a14	-	-	24	7	.19	.03
F	Sedum lanceolatum	c23	b13	a-	-	11	5	-	.02	-
F	Solidago sparsiflora	17	27	10	-	8	14	6	.51	.24
F	Taraxacum officinale	a-	b11	ab6	-	-	5	2	.05	.01
F	Tragopogon dubius	5	8	5	1	2	5	3	.02	.04

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
F	Trifolium gymnocarpon	$_a$-	$_b$10	$_b$6	-	-	5	4	.03	.02
F	Zigadenus spp.	-	3	-	-	-	1	-	.00	-
Total for Annual Forbs		0	508	21	0	0	179	11	4.72	0.08
Total for Perennial Forbs		435	551	426	160	194	249	200	8.65	10.01
Total for Forbs		435	1059	447	160	194	428	211	13.38	10.09

Values with different subscript letters are significantly different at % = 0.10

BROWSE TRENDS --
Herd unit 08B, Study no: 4

Type	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	Amelanchier alnifolia	0	1	-	.38
B	Artemisia tridentata vaseyana	84	90	14.17	13.44
B	Ceanothus fendleri	23	32	6.81	3.92
B	Chrysothamnus viscidiflorus lanceolatus	26	21	.71	.33
B	Gutierrezia sarothrae	3	1	.03	.15
B	Mahonia repens	10	13	.45	.16
B	Pinus ponderosa	0	2	-	1.23
B	Purshia tridentata	52	46	3.98	6.00
B	Rosa woodsii	2	0	-	-
B	Symphoricarpos oreophilus	4	2	.79	.21
Total for Browse		204	208	26.97	25.85

CANOPY COVER --
Herd unit 08B, Study no: 4

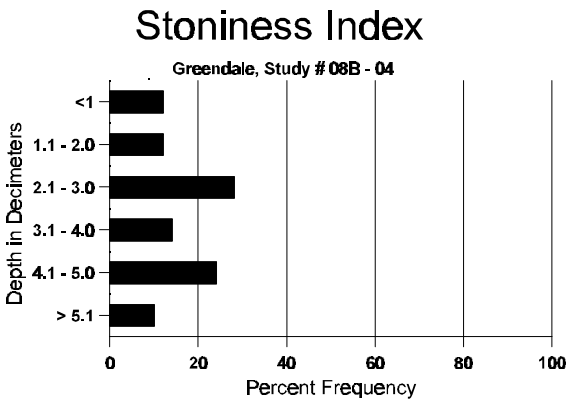
Species	Percent Cover	
	'95	'00
Pinus ponderosa	-	2

BASIC COVER --
Herd unit 08B, Study no: 4

Cover Type	Nested Frequency		Average Cover %			
	'95	'00	'82	'88	'95	'00
Vegetation	384	364	9.25	10.75	46.69	59.22
Rock	144	84	2.25	4.00	2.57	1.79
Pavement	158	118	0	7.00	1.43	1.28
Litter	398	389	51.25	53.25	55.45	65.27
Cryptogams	33	40	1.25	0	.57	.75
Bare Ground	280	193	36.00	25.00	16.99	11.93

SOIL ANALYSIS DATA --
Herd Unit 8B, Study # 4, Study Name: Greendale

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
19.86	56.2 (18.11)	6.3	61.4	21.7	16.9	2.5	3.3	227.2	0.6



PELLET GROUP FREQUENCY --
Herd unit 08B, Study no: 4

Type	Quadrat Frequency		Pellet Transect	
	'95	'00	Pellet Groups per Acre ⁄00	Days Use per Acre (ha) ⁄00
Rabbit	-	11	348	N/A
Elk	2	6	800	62 (152)
Deer	8	35	366	28 (69)
Cattle	1	3	122	10 (25)
Moose	-	-	9	0.5 (1)

BROWSE CHARACTERISTICS --
Herd unit 08B, Study no: 4

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier alnifolia																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	29	45	0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	26	35	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	0	Dec:	-
	'88	0		-
	'95	0		-
	'00	20		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
S	82	2	-	-	-	-	-	-	-	-	-	2	-	-	133			2
	88	13	-	-	-	-	-	-	-	-	10	-	3	-	866			13
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	16	4	-	-	-	-	1	-	-	19	2	-	-	1400			21
	95	6	20	-	-	-	-	-	-	-	26	-	-	-	520			26
	00	25	1	-	-	-	-	-	-	-	26	-	-	-	520			26
M	82	21	-	-	-	-	-	-	-	-	17	4	-	-	1400	24	31	21
	88	15	17	2	1	1	-	-	-	-	36	-	-	-	2400	26	26	36
	95	50	105	25	-	3	-	-	-	-	183	-	-	-	3660	19	30	183
	00	82	51	-	4	1	4	2	-	-	144	-	-	-	2880	19	27	144
D	82	2	3	-	-	-	-	-	-	-	-	5	-	-	333			5
	88	5	3	1	-	-	-	-	-	-	9	-	-	-	600			9
	95	6	6	1	-	-	-	-	-	-	10	-	-	3	260			13
	00	29	30	-	8	1	-	2	-	-	56	-	-	14	1400			70
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	220			11
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	400			20

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	12%	00%	00%	+61%
'88	38%	05%	00%	+ 1%
'95	60%	12%	01%	+ 8%
'00	35%	02%	06%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	1733	Dec:	19%
	'88	4400		14%
	'95	4440		6%
	'00	4800		29%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Ceanothus fendleri																		
Y	82	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	39	-	-	-	-	-	-	-	-	39	-	-	-	780	9	49	39
	00	39	-	-	2	-	-	-	-	-	41	-	-	-	820	8	37	41

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	+13%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	66	Dec:	-
	'88	0		-
	'95	780		-
	'00	900		-

Chrysothamnus viscidiflorus lanceolatus																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	82	6	-	-	-	-	-	-	-	-	6	-	-	-	400	10	9	6
	88	6	-	-	-	-	-	1	-	-	6	1	-	-	466	12	10	7
	95	30	1	-	9	-	-	-	-	-	40	-	-	-	800	14	16	40
	00	28	-	-	1	-	-	-	-	-	29	-	-	-	580	10	12	29
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	1	-	-	1	-	-	-	20			1
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	+14%
'88	00%	00%	00%	+45%
'95	02%	00%	00%	-26%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	400	Dec:	0%
	'88	466		0%
	'95	840		0%
	'00	620		3%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Gutierrezia sarothrae																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66	6	10	1
	95	4	-	-	-	-	-	-	-	-	4	-	-	-	80	7	7	4
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40	-	-	2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	+18%
'95	00%	00%	00%	-50%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'82	0	Dec:		-
'88	66			-
'95	80			-
'00	40			-

Mahonia repens																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	71	-	-	-	-	-	-	-	-	71	-	-	-	1420			71
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	244	-	-	-	-	-	-	-	-	244	-	-	-	4880	3	4	244
	00	16	-	-	-	-	-	-	-	-	16	-	-	-	320	2	2	16

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	-64%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'82	0	Dec:	-
'88	0		-
'95	4880		-
'00	1740		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Pinus ponderosa																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40	-	-	2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	0	Dec:	-
	'88	0		-
	'95	0		-
	'00	60		-

Purshia tridentata																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	1	-	-	-	-	-	1	-	-	2	-	-	-	40			2
	00	-	-	-	-	-	-	1	-	-	1	-	-	-	20			1
Y	82	-	1	-	-	-	-	-	-	-	-	1	-	-	66			1
	88	4	-	-	-	2	-	1	-	-	6	1	-	-	466			7
	95	1	4	-	-	-	-	-	-	-	5	-	-	-	100			5
	00	4	-	-	1	-	-	1	-	-	6	-	-	-	120			6
M	82	-	17	3	-	-	-	-	-	-	8	12	-	-	1333	22	26	20
	88	3	8	8	-	1	-	2	-	-	18	-	4	-	1466	19	25	22
	95	4	35	5	2	11	-	-	-	-	57	-	-	-	1140	14	33	57
	00	20	21	-	4	10	1	-	-	-	56	-	-	-	1120	17	35	56
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	3	1	-	-	-	-	-	-	4	-	-	-	266			4
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	4	-	2	-	-	-	-	-	5	-	-	2	140			7
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	86%	14%	00%	+36%
'88	42%	27%	12%	-44%
'95	81%	08%	00%	+10%
'00	51%	01%	03%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	1399	Dec:	0%
	'88	2198		12%
	'95	1240		0%
	'00	1380		10%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Rosa woodsii																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	8	-	-	-	-	-	-	-	-	8	-	-	-	160			8
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	7	8	1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:	
	'82	0		-
	'88	0		-
	'95	180		-
	'00	0		-

Symphoricarpos oreophilus																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	82	1	-	-	-	-	-	-	-	-	1	-	-	-	66	9	17	1
	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66	10	19	1
	95	5	-	-	-	-	-	-	-	-	5	-	-	-	100	17	53	5
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	20	66	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	+ 0%
'88	00%	00%	00%	+34%
'95	00%	00%	00%	-60%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:	
	'82	66		-
	'88	66		-
	'95	100		-
	'00	40		-